

EXECUTIVE SUMMARY

The classification of “major” vs. “minor” repairs and alterations has been a concern since the earliest days of aviation safety regulation. In 1994 the Aviation Rulemaking Advisory Committee (ARAC) established the “Clarification of Major/Minor Repairs or Alterations Working Group” (Major/Minor Working Group), with the following task (as amended):

- Review the aviation regulations to determine whether rulemaking and/or policy actions are needed on the issues of acceptable and/or approved data.
- Determine the feasibility of removing the words major and minor associated with the repair and alteration of aircraft.
- Review current definitions of maintenance, major and minor repair, and major and minor alteration.

The problem with the terms major and minor, since they became part of the regulations, has been their ambiguity. While there are clear cases where most people can agree that a particular repair or alteration is either major or minor, there are also many scenarios where few people would agree on the determination. The FAA’s concern about this issue is that it believes industry treats too few repairs and alterations as major, where as industry’s concern is that the FAA inspectors too often label minor repairs and alterations as major.

In order to fully understand the problems of classifying alterations and repairs the Major/Minor Working Group analyzed the history of the major/minor classification back to its inception in 1931. The Major/Minor Working Group also reviewed the practical effect of making a determination of major versus minor. Initial discussions by the Working Group concluded that the main problem was the need for approved data. The Working Group’s developed an advisory circular outlining an acceptable means of developing data and obtaining appropriate approval of data, when required, to be used in making major repairs or major alterations. The Major/Minor Working Group also reviewed the definitions of “major” and “minor” and relevant regulations to determine the need for changes in the existing rules.

The primary areas of controversy regarding the definitions of major alteration and major repair revolve around the following questions: What does “appreciably affect” mean? What does “if improperly done” mean? What does paragraph (2) mean in both definitions? The Major/Minor Working Group has analyzed these questions and proposed recommendations for improving the definitions.

Recommendations

1. Revise 14 CFR 1.1 Definitions as follows:

Alteration means a planned change in type design.

Major repair means a repair:

- (1) Where the damage to be repaired, or proposed repair, will significantly affect aircraft weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or
- (2) Where the complexity of the repair may significantly affect proper accomplishment and thereby adversely affect, weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or
- (3) That is not done according to accepted practices and cannot be done by elementary operations.

Major alteration means an alteration not listed in the aircraft, aircraft engine, or propeller specifications that:

- (1) Significantly affects weight, balance, structural strength, performance, powerplant operation, flight characteristics, or other qualities affecting airworthiness; or
- (2) Is not done according to accepted practices and cannot be done by elementary operations.

Repair means the elimination of damage or restoration of a damaged airframe, powerplant, propeller, appliance, or part thereof.

Replacement means the removal and installation of an airframe component, powerplant, propeller, appliance, or part thereof, in conformity with the approved type design.

2. Add § 43.14 to allow for an alternative approach to the major/minor classification that is approved by the Administrator and is based on the § 1.1 definitions. The lists in part 43, Appendix A, are presumed to be major in lieu of the use of an alternative methodology.
3. Revise part 43, Appendix A as proposed in appendix 3 of this Report.
4. Training of FAA Inspector and Industry Personnel (people subject to the rule).

The Working Group believes that part of the problem with the inconsistency of classification for major and minor repairs and alterations is a result of the inconsistency of enforcement by FAA inspectors and the inconsistency of interpretation by persons involved in process of performing maintenance. The Working Group recommends that the FAA develop additional guidance material (handbooks, checklists) to be used by the FAA inspectors beyond what is provided by the AC. The Working Group believes that such materials could be developed by a group such as itself. Advisory material, including but not limited to the inspectors handbooks should incorporate the reasoning outlined by the Working Group. In addition to improving the training, guidance and general

education of the inspectors there also needs to be an increased emphasis on the guidance and training provided to the certificate holders.

5. Advisory Circular

The Working Group recommends the issuance of the Advisory Circular 43.XXX, Repair And Alteration Data that appears in appendix 1. The Working Group believes that AC 43.XXX works in concert with the proposed changes to part 43 Appendix A. If the Appendix A changes go forward without the AC the result would be unworkable.

The Working Group recommends that the AC be finalized and published as soon as possible.